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From Conquest to Cultivation: Exploring Babur's Botanical Legacy and Plant Science

Aijaz Ahmad^{1*}

¹Associate Professor, Department of History, Yasin Meo Degree College, Nuh

aijazahmadnuh@gmail.com

*Corresponding author

Abstract

The Mughal Emperor Zahiruddin Mohammad Babur (1483–1530), renowned for his conquests and establishment of the Mughal Empire in India, left an enduring legacy not only in political and military spheres but also in the realms of horticulture and plant science. This paper explores Babur's botanical legacy, tracing his journey from a conqueror to a cultivator, as documented in his memoir, the *Baburnama*. Babur's keen observations of flora across Central Asia and the Indian subcontinent reveal a deep appreciation for nature, which manifested in the creation of Persian-inspired gardens, such as the introduction of new plant species to India. His detailed descriptions of plants, their characteristics, and their uses reflect an early empirical approach to botany, bridging aesthetic, ecological, and scientific dimensions. By examining Babur's contributions to horticulture, including his role in plant dissemination and garden design, this study highlights how his legacy influenced Mughal environmental practices and laid the groundwork for advancements in plant science. Furthermore, it contextualizes his work within the broader history of botanical exploration, emphasizing the interplay between conquest, cultural exchange, and cultivation in shaping early modern plant knowledge. Through this lens, Babur emerges not only as a warrior-king but also as a pioneer of botanical inquiry, whose legacy continues to inspire interdisciplinary studies in history, ecology, and plant science.

Keywords: Babur; Baburnama; Hindustan; fruits; flowers

Introduction

The Mughal Emperor Zahiruddin Mohammad Babur (1483–1530) was born as the son of Omar Shaikh Mirza, a third-generation descendant of Timur and the leader of Farghana, a region in present-day Uzbekistan. After his father died in 1494, Babur ascended to his throne at an early age. Babur is the founder of the Mughal dynasty and was a great king, a classic poet, theoretician, literary critic, historian, jurist, linguist, art critic, ethnographer, and plant scientist, and he had a multifaceted activity and creativity. The *Baburnama* "History of Babur" or "Letters of Babur" alternatively known as *Tuzuk-i-Baburi* is the memoirs of Zahir-ud-din Mohammad Babur. It is written in the Uzbek Chagatai language, known to Babur as Turki, the spoken language of the Timuri. Babur was an educated Timuri prince, and his observations and comments in his memoirs reflect

an interest in nature, society, politics, and economics. His book *Baburnama* covers topics as diverse as astronomy, geography, statecraft, military matters, weapons and battles, plants and animals, biographies and family chronicles, courtiers and artists, poetry, music, and paintings, wine parties, historical monument tours, and contemplations on human nature.

He describes India that the country of Hindustan is extensive, full of men, and full of produce. On the east, south, and even on the west, it ends at its great enclosing ocean. On the north it has mountains which connect with those of Hindu-Kush, Kafiristan and Kashmir. North-west of it lie Kabul, Ghazni and Qandahar. Delhi is held to be the capital of the whole of Hindustan.¹ He further says that it is a wonderful country. Compared with his country, India is a different world; its mountains, rivers, jungles and deserts, its towns, its cultivated lands, its animals and plants, its peoples and their tongues, its rains, and its winds, are all different.²

In the *Baburnama*, Babur provides a detailed and vivid account of the fruits and vegetables he encountered in India (Hindustan) after his arrival in the early 16th century. As a keen observer of nature, shaped by his love for the landscapes of his Central Asian homeland, Babur meticulously documented the plants of India, often comparing them to those he knew from Ferghana and Kabul. His descriptions reflect both admiration for the diversity and abundance of Indian species and a sense of alienation due to their unfamiliarity.

Babur's botanical insight:

Babur's botanical insight and interest in linguistics have greatly helped scientists and historians of science. Babur was particularly attentive to plants, especially fruit-bearing trees, flowers, and crops, as he had a deep appreciation for gardens and horticulture. He found India's vegetation both impressive in its variety and disappointing in its lack of the fruits he cherished from Central Asia. Below is an overview of the Indian fruits and vegetables he mentioned:

Mango: Babur was notably impressed by the mango, which he described as one of the finest fruits of Hindustan. Among the Indian fruits Babur was full of praise of mango and says that the people call it Amb (now commonly used as Aam) which is very peculiar fruit in India. Some people call the fruit "Naghzak" as Khwaja Khusrau does:³

"Naghzak-i Maa Naghz-kun-i Bustban,

Naghztarin mewa-i-Hindustan"

(Our fairling, (i.e. mango) beauty-maker of the garden, Fairest fruit of Hindustan.)

Babur says that mangoes when good, are very good, but many as are eaten, few are first-rate. They are usually plucked unripe and ripened in the house. Unripe, they make excellent condiments, are good also preserved in syrup. Taking it altogether, the mango is the best fruit of Hindustan. Some so praise it as to give it preference over all fruits except the muskmelon, but such praise outmatches it. It resembles the *kardi* peach. It ripens in the rains. It is eaten in two ways: one is to squeeze it to a pulp, make a hole in it, and suck out the juice, the other, to peel and eat it like the *kardi* peach. Its tree grows very large and has a leaf somewhat resembling the peach-tree's. The trunk is ill-looking and ill-shaped, but in Bengal and Gujrat is heard of as growing handsome.⁴

Banana: Babur describes the plantain fruit or banana (in India called as Kela) and Arab called it as "*Mauz*". He linked it to a cucumber in shape and remarked on its sweetness, though he found it less appealing than his preferred fruits. Babur says that its tree is not very tall, indeed is not to be called a tree, since it is something

between a grass and a tree. Its leaf is a little like that of the Aman-qara (perhaps a tree found in Transoxiana) but grows about two yards long and nearly one broad. Out of the middle of its leaves rises, heart-like, a bud which resembles a sheep's heart. As each leaf (petal) of this bud expands, there grows at its base a row of six or seven flowers which become the plantain. These flowers become visible with the lengthening of the heart-like shoot and the opening of the petals of the bud. The tree is understood to flower once only.⁵

Babur further says that this fruit banana has two pleasant qualities, one that it peels easily, and the other that it has neither stone nor fibre. It is a rather longer or thinner than the Eggplant (Brinjal). It is not very sweet; the Bengal plantain is, however, said to be very sweet. The plantain is a very good-looking tree, its broad, broad leaves of a beautiful green having an excellent appearance.⁶

Anbli: The anbli (commonly known Imli) is another fruit described by Babur. By this name Anbli people call the Khurma-i-Hind (Indian date-tree). It has finely cut leaves (leaflets). It is a very good-looking tree, giving dense shade. It grows wild in masses too.⁷

Mahuwa: The Mahuwa is another fruit described by Babur in his Memoir Baburnama. Persian people call it *Gul-Chikan* (or *Chigan*- distilling-flower). This also is a very large tree. Most of the wood in the houses of Hindustanis is from it. Spirit (*Aaraq*) is distilled from its flowers, not only so, but they are dried and eaten like raisins, and from them thus dried, spirit is also extracted. The dried flowers taste just like *Kishmish* (raisin); they have an ill-flavour. The flowers are not bad in their natural state; they are eatable. The Mahuwa grows wild also. Its fruit is tasteless, has rather a large seed with a thin husk, and from this seed, again, oil is extracted.⁸

Jackfruit: The jackfruit (Kadhil, Kanthal, or Kathal) is another. Babur describes that this is a fruit of singular form and flavour; it looks like a sheep's stomach stuffed and made into a haggis; and it is sickeningly sweet. Inside it are filbert-like stones which, overall, resemble dates, but are round, not long, and have softer substances; these are eaten. The jackfruit is very adhesive; for this reason, people are said to oil mouth and hands before eating it. It is heard of also as growing, not only on the branches of its tree, but on trunk and root too. One would say that the tree was all hung round with haggises.⁸

Monkey-jack: Babur describes another fruit monkey-jack (Badhal). The fruit may be of the size of a quince or apple. Its smell is not bad. Unripe it is a singularly tasteless and empty thing; when ripe, it is not so bad. It ripens soft, can be pulled to pieces and eaten anywhere, tastes very much like a rotten quince, and has an excellent little austere flavour.⁹

Lote-fruit: The lote-fruit (Lokat fruit or Ber) is another. Its Persian name is understood to be *Kanar*. It is of several kinds: of one the fruit is larger than the plum; another is shaped like the Husaini grape. Most of them are not very good; we saw one in Bandir (Gualiar) that was really good. The lote-tree sheds its leaves under the Signs *Saur* and *Jauza* (Buli and Twins), burgeons under *Saratan* and *Asad* (Crab and Lion) which are the true rainy season, then becoming fresh and green, and it ripens its fruit under *Dalu* and *Haut* (Bucket i.e. Aquarius, and Fish).¹⁰

Date-palm: The date-palm (Khajoor) is another fruit described by Babur. This is not peculiar to Hindustan but is here described because it is not in those countries (Tramontana). It grows in Lamghan also. Its branches (i.e. leaves) grow from just one place at its top; its leaves (i.e. leaflets) grow on both sides of the branches from neck to tip; its trunk is rough and ill-coloured; its fruit is like a bunch of grapes, but much larger. People say that the date-palm amongst vegetables resembles an animal in two respects: one is that, as, if an animal's head

be cut off, its life is taken, so it is with the date-palm, if its head is cut off, it dries off; the other is that, as the offspring of animals is not produced without the male, so too with the date-palm, it gives no good fruit unless a branch of the male-tree be brought into touch with the female-tree. The truth of this last matter is not known (to me).¹¹

The above-mentioned head of the date-palm is called cheese. The tree so grows that when its leaves come out is cheese-white, the leaves become green as they lengthen. This white part, the so-called cheese, is tolerable eating, not bad, much like the walnut. People make a wound in the cheese and insert into this wound a leaf (let), in such a way that all liquid flowing from the wound runs down it. The tip of the leaflet is set over the mouth of a pot suspended to the tree in such a way that it collects whatever liquor is yielded by the wound. This liquor is rather pleasant if drunk at once; if drunk after two or three days, people say it is quite exhilarating. Once when I had gone to visit Bari, and made an excursion to the villages on the bank of the Chambal-river, we met with people collecting this date-liquor in the valley-bottom. A good deal was drunk; no hilarity was felt; much must be drunk, seemingly, to produce a little cheer.¹²

Coco-nut palm: The coco-nut palm (Narial) is another fruit described by Babur. An Arab gives it Arabic form and says *Narjil*; Hindustani people say Nalir, seemingly by popular error. Its fruit is the Hindi nut from which black spoons are made and the larger ones of which serve guitar-bodies. The coco-palm has a general resemblance to the date-palm but has more and more glistening leaves. Like the walnut, the coconut has a green outer husk; but its husk is fibre on fibre. All ropes for ships and boats and cord for sewing boat-seams are heard of as made from these husks. The nut, when stripped of its husk, near one end shews a triangle of hollows, two of which are solid, the third a nothing (bush), easily pierced. Before the kernel forms, there is fluid inside; people pierce the soft hollow and drink this; it tastes like date-palm cheese in solution and is not bad.¹³

Palmyra-palm: The palmyra-palm (Tar) is fruit discussed in Baburnama. Its branches (its leaves) also are quite at its top. Just as with the date-palm, people hang a pot on it, take its juice and drink it. They call this liquor *Tari*; it is said to be more exhilarating than date liquor. For about a yard along its branches (leaf-stems), there are no leaves; above this, at the tip of the branch (stem), 30 or 40 open out like the spread palm of the hand, all from one place. These leaves approach a yard in length. People often write Hindi characters on them after the fashion of account rolls.¹⁴

Orange: The orange and orange-like fruits are others of Hindustan. Oranges grow well in the Lamghanat, Bajaur and Sawad. The Lamghanat one is smallish, has a naval, is very agreeable, fragile and juicy. It is not at all like the orange of Khurasan and those parts, being so fragile that many spoil before reaching Kabul from the Lamghanat which may be 13-14 *Yighach* (65-70 Miles), while the Astarabad orange, by reason of its thick skin and scant juice, carries with less damage from there to Samarkand, some 270-280 *Yighach*. The Bajaur orange is about as large as a quince, very juicy and more acid than other oranges. Babur says that Khwaja Kalan once said to him, "We counted the oranges gathered from a single tree of this sort in Bajaur and it mounted up to 7,000." Babur further says that it had been always in his mind that the word *Naranj* was an Arabic form; it would seem to be really so, since everyone in Bajaur and Sawad says the orange as *Narang*.¹⁵

Citron: The citron (Turunj) is another of the fruits resembling the orange. Bajauris and Sawadis call it *Balang* and hence give the name *Balang-marabba* to its marmalade confiture. In Hindustan people call the Turunj bajauri. Babur says that there are two kinds of turunj: one is sweet, flavourless and nauseating, of no use for eating but with peel that may be good for marmalade; it has the same sickening sweetness as the Lamghanat Turunj; the other, that of Hindustan and Bajaur, is acid, quite deliciously acid, and makes excellent sherbet,

well-flavoured, and wholesome drinking. Its size may be that of the Khusrawi melon; it has a thick skin, wrinkled and uneven, with one end thinner and beaked. It is deeper yellow than the orange. Its tree has no trunk, is rather low, grows in bushes, and has a larger leaf than the orange.¹⁶

Babur has mentioned many fruits resembling citron or orange. He says that the **Sangtara** is another fruit resembling the orange (*naranj*). It is like the citron (*turunj*) in colour and form but has both ends of its skin level; also, it is not rough and is somewhat the smaller fruit. Its tree is large, as large as the apricot, with a leaf like orange's. It is a delicious acid fruit, making a very pleasant and wholesome sherbet. Like lime it is a powerful stomachic but not weakening like the orange. Another fruit resembling the orange is the large lime which they call **Gal-Gal** in Hindustan. It has the shape of a goose egg, but unlike that egg, does not taper to the ends. Its skin is smooth like the sangtara's; it is remarkably juicy. The **Janbiri** lime is another orange-like fruit. It is orange shaped and, though yellow, not orange yellow. It smells like the citron (*Turunj*); it too is deliciously acid. The **Sada-fal** (Phal) is another orange-like fruit. This is pear-shaped, colors like the quince, ripens sweet, but not to the sickly sweetness of the orange. The **Amrd-fal** (Amrit-phal) is another orange-like fruit. The **Lime** (*Limu*) is another. It is very plentiful, about the size of a hen's egg, and of the same shape. If a person poisoned drinks the water in which its fibers have been boiled, danger is averted. The **Lemon** (*Karna*) is another fruit resembling the orange; it may be as large as the *Gal-Gal* and is also acid. The **Amal-bid** is another fruit resembling the orange. Babur says that after three years (in Hindustan), it was first seen today. They say a needle melts away if put inside it, either from its acidity or some other property. It is as acid, perhaps, as the citron and lemon.¹⁷

Babur has also mentioned many fruits other than the orange or citron family. The **Mimusops** (*Khirni*) is a fruit in India. Its tree, though not very large, is not small. The fruit is yellow and thinner than the red Jujube. It has just the grape's flavour, but rather bad after-taste; it is not bad, however, and is eatable. The husk of its stone is thin. He also mentions another fruit, **Jaman**. Its leaf, except for being thicker and greener, is quite like the willow's. The tree does not want beauty. Its fruit is like a black grape, is sourish, and not very good. Another fruit he mentions is **Kamrak**. Its fruit is five-sided, about as large as the *Ain-alu*, and some 3 inches long. It ripens to yellow; gathered unripe, it is very bitter; gathered ripe, its bitterness has become sub-acid, not bad, not wanting in pleasantness. He mentions a fruit **Karaunda**. He says that it grows in bushes on the plains. In flavour it is like the rhubarb itself but is sweeter and less juicy. He mentions another fruit, **Paniyala**. It is larger than the plum and like the red-apple unripe. It is a little austere and is good. The tree is taller than the pomegranate's; its leaf is like that of the almond tree but smaller. The **Gular** is another fruit in India. The fruit grows out of the tree-trunk, resembles the fig, but is singularly tasteless. The **Amla** is another. This also is a five-sided fruit. It looks like the un-blown cotton-pod. It is an astringent and ill-favored thing, but confiture made of it is not bad. It is a wholesome fruit. Its tree is of excellent form and has very minute leaves. The **Chirunji** is another. Babur says about this tree that it had been understood to grow in the hills, but he knew later about it, because there were three or four clumps of it in our gardens. It is much like the mahuwa. Its kernel is not bad, a thing between the walnut and the almond, not bad! It is smaller than the pistachio and round; people put it in custards and sweetmeats.¹⁸

Like the fruits, Babur has also described many flowers as follows:

Jasun: In Hindustan there is a great variety of flowers. Babur says that one is the *Jasun* (*Hibiscus rosa sinensis*), which some Hindustanis call *Gazhal*. It is not grass; its tree (is in stems like the bush of the red-rose) is rather taller than the bush of the red-rose. The flower of the *Jasun* is fuller in colour than that of the pomegranate and may be of the size of the red-rose, but, the red-rose, when its bud has grown, opens simply, whereas, when the *Jasun* bud opens, a stem on which other petals grow, is seen like a heart amongst its expanded petals. Though the two are parts of the one flower, the outcome of the lengthening and thinning of that stem-like heart of the

first-opened petals gives the semblance of two flowers. It is not a common matter. The beautifully colored flowers look very well on the tree, but they do not last long; they fade in just one day.. The *Jasun* blossoms very well through the four months of the rain; it seems indeed to flower all through the year; with this profusion, however, it gives no perfume.¹⁹

Kiura: The *Kiura* (screw-pine) is another flower highly praised by Babur. Musk has the defect of being dry; this may be called moist musk, a very agreeable perfume. The tree's singular appearance is notwithstanding, it has flowers perhaps 13.50 to 18 inches long. It has long leaves having the character of the reed and having spines. Of these leaves, while pressed together bud-like, the outer ones are the greener and spinier; the inner ones are soft and white. In amongst these inner leaves grow things like what belongs to the middle of a flower, and from these things comes the excellent perfume. When the tree first comes up not yet shewing any trunk, it is like the bush (*Buta*) of the male-reed, but with wider and more spiny leaves. What serves it for a trunk is very shapeless, its roots remaining shewn.²⁰

Kanir: The Kanir (the oleander) is another flower mentioned by Babur. It grows both red and white. Like the peach-flower, it is five petalled. It is like the peach-bloom (in color), but opens 14 or 15 flowers from one place, so that seen from a distance, they look like one great flower. The oleander-bush is taller than the rose-bush. The red oleander has a sort of scent, faint and agreeable. (like the *Jasun*) it also blooms well and profusely in the rain, and it also is had through most of the year.²¹

Jasmine: The Jasmine or *Yasman* is another flower praised by Babur. It is white in colour and the people call it *Champa*. It is larger and more strongly scented than our *Yasman*-flower.²²

All the above keen observations, scientific description and calculations of plants and flowers by Babur shows Babur's botanical insight and his approach to the plant science during the early Mughal India. Surprisingly, the plant scientist Babur also has no parallel in military science during his time in Indian subcontinent. His information and style of description and interest in linguistics have greatly helped scientists and historians of science. For example, when Babur first saw plantain (Banana) plants, he promptly identified it as a kind of weed or grass and not a proper tree. Surprisingly, this is botanically correct. Similarly, we now understand the origin of the word tamarind (*Imli*) as Babur described it as Tamar-i-Hind or Indian date-palm.

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